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ABSTRACT

This summary provides an overview of three reports comprising a study of resource allocation policies through various organizational structures at both the education system and school levels. An introduction briefly reviews related research and outlines the overall structure of the study, citing some issues of special concern: the balance between primary and secondary staffing allocations; the determination of staffing formulae; alternative staffing methods using aides, specialists, ancillary staff, and part time teachers; teacher workload and noncontact time; flexibility in school staff deployment; implications for staffing policy of various teaching methodologies; effects of alternative staffing practices; system responsiveness to school needs; and the problem of regionalism and staff allocation. The remaining three chapters condense the findings of the individual reports--a comparative study of education systems allocation, a school-level study based on survey data on patterns of staff allocation, and a more detailed school-level study using case studies of selected schools with especially effective staffing policies. The conclusion projects that resource allocation will be influenced in the future by such issues as the balancing of concerns for equity and diversity, the tension between traditional centralized responsibility and the emerging devolution of authority to schools, and weighing priorities among the many purposes of education. (MJL)

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ACER Research Monograph No. 15

RESOURCE ALLOCATION IN THE GOVERNMENT SCHOOLS OF AUSTRALIA AND NEW ZEALAND

A Summary of the Reports of the Staffing and Resources Study

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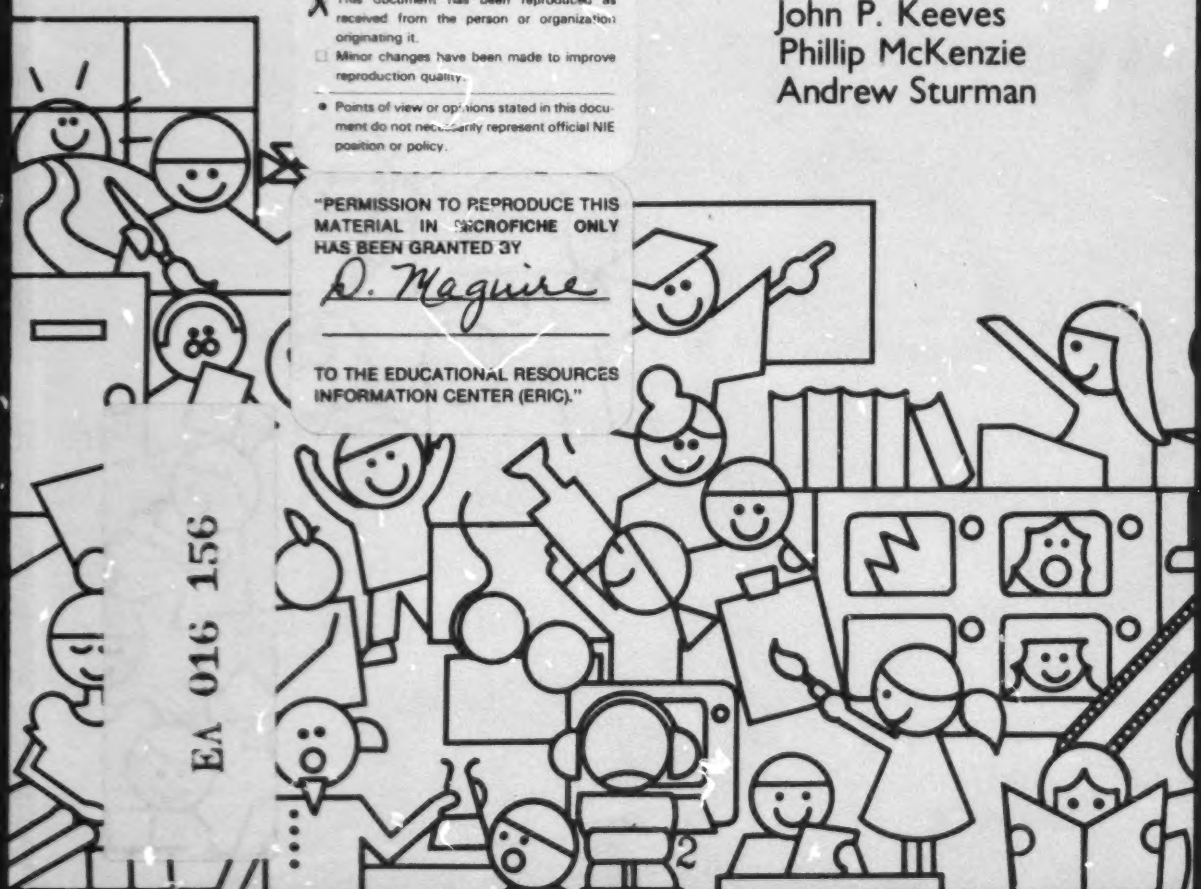

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RESOURCE ALLOCATION IN THE GOVERNMENT SCHOOLS OF AUSTRALIA AND NEW ZEALAND

A Summary of the Reports of the Staffing and Resources Study

John Ainley, John P. Keeves, Phillip McKenzie, and Andrew Sturman

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This report is a summary of the three more extensive reports listed below:

P.A. McKenzie and J.P. Keeves

Eight Education Systems: Resource Allocation Policies in the Government School Systems of Australia and New Zealand. Staffing and Resources Study Report No. 1. Hawthorn, Vic.: ACER, 1982.

J.G. Ainley

Six Hundred Schools: A Study of Resource Allocation in Australian and New Zealand Government Schools. Staffing and Resources Study Report No. 2. Hawthorn, Vic.: ACER, 1982.

A. Sturman

Patterns of School Organization: Resources and Responses in Sixteen Schools. Staffing and Resources Study Report No. 3. Hawthorn, Vic.: ACER, 1982.

An indication of where greater detail can be found in the main reports has been provided in the margin of the summary.

This summary report has been prepared by the Australian Council for Educational Research as a result of a research project commissioned by the Australian Education Council. The statements and conclusions in the summary are the responsibility of the authors and do not necessarily represent the views of the Australian Education Council or of the State, Territory, Commonwealth or New Zealand Departments of Education.

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SECTION 1

INTRODUCTION

The Staffing and Resources Study

The Staffing and Resources Study was conducted by the Australian Council for Educational Research and was funded by the Australian Education Council.

The study had seven terms of reference designed to guide it:

1 To examine existing policies, procedures and trends relating to the allocation of staff and resources to and within Australian and New Zealand schools.

2 To inquire into difficulties faced by school systems and schools in allocating staff and resources to and within schools.

3 To examine measures that are being taken at the present time at various levels to overcome these difficulties.

4 To review new developments and alternative arrangements in staffing schools.

5 To recommend action which can be taken by schools and school systems to improve existing arrangements or overcome problems experienced in staffing schools.

6 To recommend appropriate field studies or action research projects which school systems can carry out and which will enable the trying out of creative and practical ways of reorganizing staff at the school level.

7 To develop proposals which school systems in the longer term might adopt for the future direction of policies and procedures concerning the allocation of staff and resources to and within schools.

As an addition to these terms of reference nine contemporary issues were suggested as deserving attention in the study:

- the balance between primary and secondary staffing allocations;
- the determination of staffing formulae;
- alternative methods of staffing in the use of aides, specialists, ancillary staff, part-time teachers;
- teacher work load and non-contact time;
- flexibility in deploying staff within schools;

- implications for staffing policy of various philosophies and methodologies of teaching;
- effects of alternative staffing arrangements;
- system awareness of and responsiveness to the needs of individual schools; and
- regionalism and staff allocation principles and procedures.

Report 1 : 1-9
Report 2 : 1-16
Report 3 : 1-14

In designing and conducting the study most emphasis was placed on personnel rather than material resources. This reflected the emphasis within the terms of reference and the relative proportion of the education budget spent in the two areas.

Implicit in the terms of reference was the notion of two levels of resource allocation. The first appeared primarily to involve school systems and thus suggested a study of the policies of school systems in allocating staff and other resources to schools, and of the ramifications of those policies for schools. System was used in the sense of the systems of government primary and secondary schools administered by Departments of Education in the six Australian States, the schools controlled by the Schools Authority in the Australian Capital Territory (The Northern Territory was not included in the study), and the analogous national system of schools in New Zealand. The policies referred to were the policies developed and administered by the central state or national education authority which controlled the allocation of staff and resources to schools.

Report 1 : 9-11

The information for the system level study was largely provided in a series of reports produced by each of the education authorities involved in the study. The ACER co-ordinated the production of these reports mainly through the provision of a general framework which was developed in consultation with members of each of the education authorities. Using the individual reports from each system as a basis, a comparative analysis was undertaken and has been reported by McKenzie and Keeves (1982) in Report No. 1.

The second level of resource allocation was concerned with staffing policy decisions within schools. Some policies of education systems would limit the freedom of schools and it seemed likely therefore that schools would vary in the extent of their discretionary authority in this area. It was argued at the commencement of the study that little was known about the strategies used by schools in allocating resources within schools, or the effectiveness of different patterns of resource allocation. Similarly it was argued there was a

need to be more informed about various adaptive strategies used by schools to rationalize the use of their limited personnel resources. One example suggested was a strategy which released teachers from the more routine aspects of teaching by using support staff, and other members of the community, so as to use the professional skills of teachers in such activities as remedial instruction and curriculum design.

Report 2 : 17-57

At the school level of the study two approaches were used: a survey of a sample of schools, and a series of case studies in a small number of schools. The survey was designed to map the diversity of school responses to issues of resource allocation across the government schools of Australia and New Zealand. Primary and secondary schools were asked about the staffing problems they faced, the policies and practices developed in response to those problems, structural changes in school organization developed in response to staffing pressures, staffing strategies devised to deal with special needs, the use of support staff and a number of related issues. The results of that survey have been reported by Ainley (1982) in Report No. 2.

Report 3 : 15-29

The second approach to the study of school level staffing policies was a series of case studies in 16 specially selected schools. In the proposal it was argued that data from the schools survey would be used to identify exemplary schools which had evolved unusually innovative

Report 3 : 30-47

and effective staffing policies and practices. In practice, selection of the case study schools took account of the need to examine schools of various types and size and the types of staffing structures reported by schools rather than being based on an objective criterion of

Report 3 : 48-54

effectiveness. The study of these specifically selected schools was intended to:

1 elucidate staffing processes described in the survey;

2 analyse in detail special innovative features of the schools in order to judge their general value to other schools in allocating resources or developing organizational structures; and

3 study the effects of constraints such as school size, type of enrolment and system policies on those schools.

The observations made in the case study schools have been collected and synthesized by Sturman (1982) in Report No. 3. The case studies of schools and the survey of schools are seen as complementing each

other in providing to the school systems information about school responses to system policies. In addition, data from the school-level phase provides other schools with a map of the wide range of resource allocation policies which are possible within given staff configurations, and with detailed examples of how some schools had responded to particular influences and constraints. The reports are seen as providing schools with a basis on which to examine their own policies as well as suggesting the basis for the design of further studies which would attempt a more rigorous evaluation of staffing policies.

A Perspective From Other Research

Report 2 : 6-16
Report 3 : 6-14

Much recent research has indicated a need to gain a better understanding of schools as organizations and the ways in which school resources are made available to students. In addition there has been an emerging recognition of the importance of understanding the inter-connection between various elements in the educational enterprise. It has been argued by writers such as Bidwell and Kasarda (1980) that understanding schools as organizations and the ways in which resources are made available to students is a necessary precursor to examining the impact of various school resources on student learning. Bidwell and Kasarda further argued that a conceptual distinction must be made between school and schooling.

> School is an organization that conducts instruction; schooling is the process through which instruction occurs. Schooling, which is a structure of action by students and teachers, is conditioned by the social organization of classrooms, curricular tracks, and other instructional units. A theory of schooling must include a conceptualization of its social organizational components. A theory of school effects must show how the organizational form of schools affects schooling. In research on school and schooling, it is important to differentiate levels of analysis to be sure that the level of analysis matches the level of conceptualization. Very different results may be obtained by research that does and does not maintain these conceptual and corresponding operational distinctions. (Bidwell and Kasarda, 1980:401)

These authors then proposed an approach to the analysis of schooling which examined the instructional units within schools as part of the process which distributes resources to students. Though in some situations the instructional unit would be the classroom, the argument was extended to consider the unequal distribution of resources to groups and individuals within classrooms. It was stressed that the

argument did not merely involve aspects of the description of resource distribution. Attention was drawn to the contrast between studies that measured resource characteristics at school or district level and those which measured characteristics at a level close to where the process of schooling occurred. Even though the former reported small or modest associations between school characteristics and student learning the latter had yielded consistently positive results (Bidwell and Kasarda, 1980: 402-403). The point concerning the level of aggregation of resource measures had been made by Barr and Dreeben (1978) in urging a synthesis of the traditions associated with studies of school effects on student learning and studies of the effects of classroom behaviour. Bidwell and Kasarda extended the argument by setting the problem within the context of the need to study schools as organizations.

The argument presented above has stressed the need to study schools as organizations in order to understand better the way resources are distributed among students. It is an argument which requires extension of the wide range of studies of organizational structures of schools and principles of administration (see Erickson, 1977). One extension would incorporate the contingency theory of Gorwin (1974) which related organizational practices to conditions in the organization and to its environment. In the present context the school system was an important component of the environment of a school. This consideration is particularly important for the government schools of Australia and New Zealand because almost all of the resources of these schools are obtained directly from the education system, and because system-wide policies govern the resource deployment strategies available to schools. A second extension would be to consider the organizational structure of the school as part of the process by which resources are allocated. As Bidwell (1979) has argued, studies of school organization and administration have tended to neglect the process and patterns of resource allocation in schools even though decisions about the distribution of resources would be among the most important tasks of school management. This suggests a need to link some of the theoretical perspectives concerning structures with an appreciation of the possibilities of resource allocation discussed by Davies (1969) and Courtney (1979).

Report 1 : 1-11
Report 2 : 27-33
Report 3 : 6-14, 30-47

In summary, the perspective adopted in the present study was consistent with an emerging body of literature relating to patterns of resource allocation. The three volumes arising from the study are concerned with examining both resource allocation patterns and the structures and processes through which these resources are allocated. The report of the study of eight education systems and the two reports concerned with schools within those education systems have each considered five major elements in the resource allocation process.

1 Background factors which shape the ways in which schools and education systems operate but which are not easily influenced by either an education system or an individual school. These factors would include the level and nature of school enrolments, macroeconomic factors, community expectations of schools, and various external requirements of schools.

2 The resources available to the education system or the school, which may be in the form of finance, personnel or materials.

3 Policy-formulation structures through which decisions are taken that either directly, or indirectly (e.g. through curriculum change) influence the pattern of resource allocation.

4 Policy-implementation structures which set the framework within which the detail of resource allocation is conducted.

5 The patterns of resource allocation within the unit being considered. At the system level this would involve the patterns of resource allocation to schools, support services and management. At the school level this would involve patterns of resource allocation to different functions of schooling and across year levels.

Even though it is convenient to think of the policies of education systems separately from the policies of schools it is important to take cognizance of the interactions between these two levels. In many instances the policies of systems will limit the possible options of schools but it is also important to be aware of the possibility that practices adopted by schools might become accommodated in system-wide policies.

SECTION 2

AMONG EIGHT EDUCATION SYSTEMS

Background Factors

Report 1 : 86-91

In the government schools sytems of Australia and New Zealand the period from about 1972 to 1979 was one of significant quantitative and qualitative improvement. In both countries government expenditure on schools increased as a share of Gross Domestic Product, and this additional expenditure was reflected in a steady decline in student-teacher ratios, the provision of additional support services and the construction of many new facilities. On a more qualitative dimension, policy development during the 1970s reflected an increased awareness of the needs of individual learners, the value of greater community involvement in decision making, and the advantages of a more extensive devolution of authority to schools.

A major factor stimulating increased government education expenditure during the early 1970s was the steady enrolment growth experienced by most school systems. Over the latter part of the 1970s however, this growth declined and in several systems even reversed so that in Australia as a whole, there were about one per cent fewer

Report 1 : 91-93

government school students in 1981 than there were in 1976. Aggregate government school enrolments are projected to decline even further during the 1980s in both Australia and New Zealand. These aggregate movements disguise considerable variation in the pattern of enrolment change between the primary and secondary school sectors, between school systems, and between areas within systems. As a general pattern, it is projected that until about 1985 government primary school enrolments will continue to decline while some growth will occur in the government secondary sector over this period. Over the second half of the 1980s it is projected that this pattern will be reversed.

Despite the difficulties associated with forecasting enrolments in government schools, on current projections it is only the secondary school sectors of the ACT, Queensland and Western Australia that the 1990 level of enrolments is likely to exceed the level in 1980. The declining enrolments in the other government school systems of Australia and New Zealand projected to occur over the 1980s could

pose considerable difficulties for those systems. In fact, it may well

Report 1 : 94-96 be necessary to increase expenditure per student in order to maintain existing resource levels per student. This arises because of changes in the composition of the teaching service (older teachers at higher salary levels), in the distribution of students between schools (as a result of uneven enrolment change), in the average size of schools (small schools generally involve higher per student costs) and in the proportion of students in the upper secondary school (where per student costs are generally greater). This additional per student expenditure need not necessarily be dependent on an increase in the proportion of Gross Domestic Product allocated to schools if the rate of growth in that index were sufficiently high. Of course the question of the levels of resources supplied to schools needs also to involve normative judgments about the purposes of schools and a consideration of evidence concerned with the effect of resource levels on student learning.

Later in this summary attention will be given to some of the evidence concerning the effects of resource levels on student learning. At this stage it is worth noting that wider expectations were

Report 1 : 11-15 held of schools at the end of the seventies than at the beginning of the

Report 2 : 66-69 sixties. A more expansive view of the role of the school is reflected in the stated goals of education systems and in the views expressed by committees of inquiry which have involved people from both inside and outside the education systems. A number of overlapping aspects have been involved in the expansion of the role of schools. One concerned a more explicit recognition of the responsibility of schools for specific groups of students such as those considered to be disadvantaged by other social conditions, those whose parents migrated from a non-English speaking country, those experiencing difficulty in learning, those who are disabled, those preparing to enter the labour market

Report 3 : 193-197 when job prospects are scarce, and those with special gifts or talents. Another involved a widening of the purposes of schools for all students so that the higher levels of cognitive learning (such as interpreting and reasoning) received a greater emphasis, relative to the learning of

Report 3 : 162-181 basic knowledge and skills. In addition the affective development of students has been frequently emphasized. Schools have become increasingly recognized as multiple outcome rather than single outcome organizations. This has become particularly apparent at the secondary school level. Finally, schools have been expected to take

cognizance of the ways in which out-of-school experiences might limit or enhance the capacity of students to avail themselves of the learning opportunities at school. This has resulted in schools being expected to liaise more extensively with home and community and to develop programs which take account of, and extend from, the background of their students.

Resources Available

The resources immediately available to an education system are financial. Money can be used to employ the personnel allocated to schools, and purchase material to be distributed to schools, or be disbursed to schools and regional offices for the employment of staff and the purchase of materials at those levels. In most systems more than 80 per cent of public spending on government schools is recurrent rather than capital expenditure. Of that recurrent expenditure about three-quarters involves salaries. Therefore the personnel allocation policies of the systems constitute a principal focus of the present study. The major personnel group employed by the school systems are the teachers located in schools.

Teachers constitute a relatively youthful profession with between one-half and one-third of teachers being less than 30 years of age. It would appear that while there was a higher proportion of young teachers in 1979 than in 1963 (see Bassett, 1980:84) over the years from 1972 to 1978 in the systems for which data were available there has been a slight ageing of the teaching force particularly among female teachers. In addition, Bassett (1980) has reported a marked increase in the level of qualifications of teachers since 1963. If the average age of the teaching service and the average qualification level were to continue to rise there would be an increase in average teacher salaries. Changes in the average age of the teaching service are obviously affected by the numbers and relative ages of those who leave and those who are new entrants. Of those who leave the teaching service in any year most resign rather than retire, even though there has been a slight increase in the proportion reaching the age of retirement. The annual rate of teacher resignation is hard to predict. During the first half of the seventies the annual rate of teacher resignation in a number of systems exceeded 10 per cent, but by 1979 the average across all systems had declined to about 6 per

Report 1 : 103-106

cent. Continuation of these relatively low resignation rates will probably lead to a continuing increase in the average age of the teaching service.

Report 1 : 108-109

A major factor influencing resignation rates is likely to be the general state of the economy and the range of alternative employment available. Burke (1981) has argued convincingly that teacher resignation rates are inversely related to general unemployment levels. Moreover, shifts in the demand for teachers may well affect some areas of teaching more than others. There is at present in some systems evidence of a shortage of teachers with particular specializations in spite of an apparent surplus of teachers in aggregate terms. This shortage has been given greatest attention in the areas of mathematics and the physical sciences in secondary schools but there are also other areas of shortage. Until recently these shortages have been neglected in discussions of the aggregate supply of teachers. It is important to be cautious in basing projections of the supply and demand for teachers on the recent relatively low resignation rates and there would seem to be a need to consider the demand for teachers in finer detail than aggregate numbers.

Report 1 : 83-84, 149-151

Not all of the expenditure on salaries is used to employ teachers. A small proportion is used to employ support staff. It is interesting that school systems vary considerably in the mix of teaching and support staff in schools. Some systems which are relatively generously provided with teachers are among the least well provided with instructional and clerical support staff. Different assumptions appear to have been made by systems as to what is an appropriate provision of support staff to asssist teachers in their work.

Policy-formulation Structures

Report 1 : 16-38

In school systems and schools there exist formal structures through which decisions about resource allocation are made. To examine these, consideration needs to be given to the relation between government schools and other parts of the educational enterprise, the role of regional offices in the process, and the effect of the devolution of authority to schools.

Report 1 : 17-20

Inter-Sectoral Policy

The administrative structure of education in Australia has diversified

over the past 20 years. Necessarily this diversification has impinged on the role of the education department. Prior to 1960 senior officers of the department advised one Minister on almost all matters pertaining to the provision of education. Following the expansion of post-secondary education (especially in the Advanced Education and Technical and Further Education sectors) most States have developed bodies separate from the Education Department to co-ordinate activities in that area. Together with an increase in the number of statutory authorities concerned with different aspects of educational provision, this has produced the potential for conflicting demands on resources. The potential for conflict has lead to various attempts to create structures from which advice can be sought. One is the establishment of an Education Commission, as in New South Wales, while another is the establishment of an Office of the Ministry and Education Policy and Priorities Executive (comprising the senior officers of each authority concerned with the provision of education) which has been suggested in South Australia. The former type of structure carries the advantage of being more obviously independent, being more widely representative, and being able to make public its advice. The later carries the advantage of having as participants the senior officers of each department who can more readily ensure that decisions are made and implemented.

Problems of resource allocation do not only involve the different levels of education within the government system of schools. Especially in areas where enrolments decline there are problems in the maintenance of government and non-government schools which may be competing for a limited number of students. The existence of a non-government and a government school in some areas might cause each to be forced to operate with increased per student costs. At present there are a few examples of government and non-government schools sharing material facilities. There is probably scope for the shared use of teaching personnel in senior secondary classes. Both types of resource sharing deserve careful evaluation in the future.

The Development of Regions

Report 1: 28-31 The government schools of Australia have traditionally been administered by central education departments while in New Zealand district education boards have had a significant role in the processes of administration. In most Australian States there have been gradual

steps towards a greater devolution of authority to regions and schools. Other than in the Australian Capital Territory (where there are no regions) and Tasmania (where there are only three regions) each Australian system has between nine and 12 regions. In New Zealand there are 10 district education boards administering primary education and three regional offices of the education department. Across the eight education systems the regions vary greatly in size; for example, there is a tenfold difference in the numbers of students or teachers within a metropolitan region of New South Wales and a non-metropolitan region of Western Australia. One possible explanation is that the number of regional offices developed has been seen in relation to the number of links to be maintained with the central office rather than in terms of an optimum size of the region as such.

Report 1 : 31-33

The extent of delegation of responsibilities from central offices to regions varies between the education systems. A simplification of the multifaceted variations between systems is somewhat hazardous but some patterns were apparent. There was variation in the extent to which responsibilities were delegated from rather little in Western Australia to a considerable extent in South Australia. In New Zealand the district education boards were primarily responsible for the appointment of staff to primary schools and within centrally determined guidelines policies were determined by an elected body. The district education boards were not simply a branch office of the central department.

Devolution of Authority to Schools

Report 1 : 20-28

The discussion above has noted the delegation of authority to regional offices. An equally important aspect of changes in the governance of schooling has involved the devolution of authority to schools. Where studies have been conducted in systems which have a high degree of devolution of authority to schools (e.g. in the Australian Capital Territory) there has been reported substantial support for such policies among all participants (Selby Smith, 1979; Cullen, 1981). Within the government education systems included in the present study there was some variation in the pattern and extent of the devolution of authority to schools. To interpret these patterns it is necessary to consider curriculum matters separately from administrative matters.

A recent review (Deschamp and McGaw, 1979) noted the general

Report 1 : 20-24 movement for schools to exercise greater initiative in decisions about the curriculum. Extending the analysis on which this review was based it was possible to identify those systems in which curricula were largely centrally prescribed - even if the process of development involved different degrees of consultation - (New South Wales, Queensland, Western Australia and New Zealand), those in which there was school-based curriculum development within prescribed guidelines (South Australia, Tasmania) and those systems in which schools themselves seemed able to exercise even greater initiative (the

Report 2 : 110-117, 123-127 Australian Capital Territory and Victoria). As noted in subsequent discussion, those systems in which the devolution of curriculum authority appeared to be greatest were systems in which statutory school boards or councils had power to either advise upon (Victoria and South Australia) or determine curriculum policy (the Australian Capital Territory). The intention would seem to have been to leaven the traditional pattern of central control with an increasing measure of local community influence. In many schools imaginative curriculum development has been based on initiatives taken at school level.

Report 2 : 101-103, 104-107 According to the survey data, principals recognize these activities along with increased liaison with parents, and counselling of students, as having increased the workload of teachers.

Report 1 : 24-28 In terms of administrative matters, in most systems schools have responsibility for the purchase of materials and equipment within centrally determined budgets. For schools in New South Wales, Queensland, Western Australia, and to some extent in Tasmania the purchases need to be made from a government stores branch. In other systems that facility may be available, and some money may be required to be spent there, but schools can also purchase directly from other sources. Schools in most systems are also able to be involved, to varying degrees, with plans for the construction and maintenance of buildings.

Report 1 : 25-27 The appointment of staff goes somewhat beyond administrative considerations. In systems other than New South Wales, Queensland and Western Australia, responsibility for appointing ancillary staff rests with the school (though the employing authority would still be the education department). In general, the appointment of teaching

Report 1 : 112-115, 123-125 staff to schools has little direct school involvement. The exceptions are in New Zealand secondary schools, where appointments are made by boards of governors, in the Australian Capital Territory, where

school boards are involved in developing specifications for the advertisement of vacancies, and in the technical schools of Victoria where the school council is involved in the appointment of the principal and vice-principals. In the appointment of teaching staff, distinctions need to be made between the employment of a person as a teacher, the determination of the appropriate staff configuration for a school, and the appointment of a particular person to a particular school. A move towards greater school influence over the configuration of staff at the school, and of more local influence in the appointment of senior staff is occurring in several systems. However, there are advantages to both schools and teachers in education departments remaining the employers of teachers. Within that consideration there would remain scope for extending the influence of schools over the pattern of staffing which they obtain.

Structural Features of School Systems

Report 1 : 39-79

In spite of the overall similarity in the pattern of education that has developed in the government school systems of Australia and New Zealand, there are some variations in practice which have ramifications for the allocation of resources to schools and for the types of programs offered to students. In the discussion which follows attention is mainly focussed on the types of schools provided, their size, the commencement of primary school, the structure of primary schools, the transition to secondary education, and the structure of secondary schools, including the provision for the senior years of secondary schooling.

Beginning Primary School

Report 1 : 39-41

In all systems children are legally required to attend school from their sixth birthday, but most begin formal schooling at an earlier age. The major issue in the various policies concerning the commencement at school would appear to be the balance between when the child is considered ready for school around the age of five, and the development of a co-ordinated classroom program in Year 1. Most systems provide a Year K as part of the full-time primary school structure prior to Year 1. However in Queensland and Western Australia a full-time Year K is not provided. Rather, pre-primary activities are offered on the basis of part-time attendance (usually

about 0.5) in centres attached to primary schools or staffed by the Education Department. Thus in those systems fewer resources per student are provided in the equivalent of Year K than for other systems. In Tasmania the provision of part-time attendance at schools extends to below Year K in the kindergarten classes. This provision is part of the Education Department budget though in other States similar provision might be made through other governmental agencies. Both Tasmania and South Australia also provide for Parent-Child centres through schools to assist parents in the development of children before those children are eligible to take part in the programs of the school. One issue which deserves further study is the relative merit of providing for pre-school children through the school system as opposed to making such provision in other ways. An indication of the types of factors involved is provided by one of the case study schools.

Report 3 : 149

In that particular school, where both kindergarten classes and parent/child sessions were offered, there appeared to be benefits in terms of continued parental involvement in the school once the children commenced the normal primary school years.

Report 1 : 41

An important difference between systems in the policies governing admission to primary school is the extent to which continuous enrolment at age five operates. Continuous enrolment has been long established in New Zealand, has more recently been adopted in some South Australian schools, and is undergoing a limited trial in the Australian Capital Territory, Victoria and Tasmania. One reaction

Report 2 : 135-145
Report 3 : 67-70

to this policy could be the adoption in the infants sections of schools of vertically structured teaching groups containing students from a number of year levels. In systems where a large number of schools had continuous enrolment policies the use of vertical grouping in the Years K-2 was more common than in other systems. However, systematic research on the effects of vertical grouping in the early primary years is not available and would be a useful guide to policy and practice.

Primary School Structures

Report 1 : 47-49

It is now less common for large primary schools to maintain a semi-autonomous infants (or junior primary) section. However, even where separate infants sections are not common, a senior teacher is often appointed to manage the three early years of schooling. In New South Wales this practice is carried a little further as slightly different staffing formulae have been maintained for the infants and

upper primary departments in large primary schools. Some systems have a few separate infants schools catering for children in the early years of schooling. This appeared to be most common in South Australia where about one-third of an age cohort proceed through a separate infants or junior primary school before entering the upper years of primary schooling.

Report 1 : 47, 66-68
Report 3 : 256-258

In New Zealand the majority of students enter primary schools at the equivalent of Year K and remain in that school (a 'contributing' primary school) until the completion of the equivalent of Year 5 (about 73 per cent attend such schools). Most of these students then spend two years (Years 6 and 7) in an intermediate school which provides some specialist teaching but which is part of the primary school system. Some students complete their primary schooling in one school which provides for education over the equivalent of Years K to 7; such schools are termed full primary schools.

Transition to Secondary School

Report 1 : 49-50

The point of transition to secondary school is at the start of Year 7 in the Australian Capital Territory, New South Wales, Victoria and Tasmania, and at the start of Year 8 in the remaining systems. Those States in which secondary schooling commences in Year 7 are the States which offer a full year of schooling designated Year K. In practice there is less than six months difference across the Australian state systems in the age at which the transition from primary to secondary schooling takes place. In New Zealand most students commence high school at the equivalent of Year 8.

Report 1 : 63-64
Report 2 : 148-153
Report 3 : 67-68, 197, 225-231

A transfer from a general program of a primary school to the more specialized programs of a secondary school at about the age of 13 is common to many education systems in English-speaking countries. It presumes that students of that age should be provided with more varied behaviour settings to enhance their development. A little blurring of the distinction between primary and secondary education has occurred in recent years as some secondary schools have provided less specialization in the first year of secondary school and some primary schools have provided more enrichment of the basic program with specialist teachers.

Report 1 : 167-169, 181-183

Projected enrolment trends in primary and secondary schools over the next decade have led to suggestions of using the potential excess capacity of the primary school system to provide for growth in

the secondary school system by policies which delay the entry of some primary school students into secondary school by one year or encourage some primary school teachers to work in secondary schools. Such suggestions necessitate several cautionary notes. First, shifts in enrolment patterns are likely to vary between regions within systems so that uniform policy changes in those directions would not be desirable or even necessary. Secondly, delaying the point of entry to secondary school could result in some loss in the richness of the varied settings of a secondary school, which may be detrimental to some aspects of student development. This is a topic on which further research is needed prior to any policy change. The third cautionary note is that though there may be good grounds for blending the skills of primary school teachers with the subject expertise of secondary school teachers in the upper primary and junior secondary years, more needs to be known about how this may best be done. From the school

Report 3: 250-254

case studies it seemed that in traditional combined primary-secondary schools there was little, interaction between the two sections. It is possible that the newer Year K to Year 12 schools being established in some systems could provide fruitful areas to evaluate various strategies for utilizing the skills of primary and secondary teachers in the one institution. Developments from these trials might well inform policy regarding the best use of different types of teaching skills. The fourth cautionary note concerns the comment which is sometimes made that extending the years of primary schooling would be cost-effective because under current policies the per student cost of a primary student is less than that of a secondary student. Such a comment tends to obscure the different costs across year levels. Per

Report 2 : 181-185

student costs at Year 7 are considerably less than those at Year 12 within secondary schools. Further, primary students in Year 6 may require greater access to specialist staff in order to provide more varied settings so that the cost differences at the point of transition may be less than first appears. What emerges is a sense of caution regarding structural change at this point and need for a greater understanding of the varied behaviour settings provided by specialized studies in the total development of young people in this age range.

Secondary School Structures

Report 1 : 50-52, 57-62

The most common form of provision for secondary schooling in Australia and New Zealand is through comprehensive co-educational

high schools commencing at Year 7 or Year 8 and extending to Year 12. Within this broad generalization there are some important variations. In Victoria a separate system of secondary technical schools has been maintained in which some 30 per cent of secondary students are enrolled. These schools offer a larger number of subjects with a vocational emphasis than do most secondary high schools and are more commonly single sex in their enrolments. They tend to be more generously staffed than high schools possibly because of the needs of vocational studies, and possibly because a greater proportion of these schools serve students in disadvantaged areas (Vickers, 1981). In most systems, the government secondary schools are coeducational although both New South Wales and New Zealand have a moderate proportion of single sex secondary schools in the larger urban centres.

Report 1 : 68-69
Report 3 : 254-256
Report 2 : 64-66, 73-74

Perhaps one of the most significant variations to the structure of secondary education which has emerged in recent years has occurred in the Australian Capital Territory and Tasmania with the development of senior colleges offering studies at Years 11 and 12 and high schools enrolling students from Years 7 to 10. Despite some differences in the origin and structure of senior colleges they have incorporated a number of common features. In both systems students are able to choose courses of study from a diverse curriculum range, student groupings have tended to be fluid, and the authority structures less directive than in a high school. The colleges have tended to be more generously staffed than high schools in the same system but it needs to be noted that in the comprehensive high schools of other systems Years 11 and 12 also had a larger share of the resources in a school than Years 7 to 10. Even though the per student costs of senior colleges are greater than for high schools of the same size, it is uncertain whether they are comparatively higher than the costs of senior classes in a conventional secondary school. This is an important area for further research. On the basis of the evidence from the school survey, it would appear that senior colleges were able to offer a wider choice of subjects for students in Years 11 and 12 without being obliged to support very small classes. In addition it has been reported that many adolescents expressed satisfaction with these types of school (Anderson, Saltet, and Vervoorn, 1980).

Report 1 : 70-71
Report 3 : 247-250
Report 1 : 117-118
Report 1 : 167-169
Report 2 : 181-185
Report 2 : 187-190

The curriculum structure of many senior colleges appears to allow considerable possibilities of student choice of program. However, in educational policy cognizance needs to be taken of other

factors. First, many small high schools serve small, relatively isolated communities which could not support a senior college. The costs of travel and accommodation for students to attend a large senior college could well outweigh any benefits of concentrating resources in one location. Perhaps more importantly, the prospect of such travel might well deter some young people from proceeding with their studies. Secondly, it is possible that young people from low socio-economic status backgrounds can be best encouraged to continue secondary education through the confidence they gain in a neighbourhood school and its staff. The prospect of changing school at the point when they are able to leave school could increase the loss of such students from the education system. The present study can offer no evidence regarding either of these two arguments against a system based on senior colleges. Certainly, it provides no evidence upon which one could weigh these disadvantages against the advantages of wider choice of studies and more adult environment which might accrue in a senior college. One tentative conclusion might be that there could well be a greater diversity of school types within education systems catering for the different demands of various communities. There would appear to be no necessary reason why any school system should totally adopt one type of structure or another. However, the impact of such structural changes in different areas needs careful evaluation, just as the impact of such changes on the quality of education in Years 7 to 10 needs additional research.

The Distribution of School Size

Report 1 : 71-77, 156-166

The distribution by size of schools can have important resource and educational implications. In general, the greater the number of small schools contained in an education system, the higher will be the operating costs of that system. The degree of dispersion of school size may also have resource implications although the extent to which increased dispersion either reduces or increases aggregate operating costs cannot be determined without detailed knowledge of the precise form of the relationship between school size and operating costs.

Report 1 : 75-76

The distribution of school size in an education system will be influenced by structural characteristics of the system such as the location of population centres, the costs of transport, and the availability of other schools. School size will also be influenced by policy considerations such as the educationally desirable minimum and maximum school enrolment levels.

Report 1 : 71-75
Report 2 : 49-53

Primary schools. In 1979 the mean size of primary school units (defined as primary schools and the primary components of combined primary-secondary schools) ranged from about 200 in New Zealand to just over 400 in the Australian Capital Territory. In all systems except the Australian Capital Territory, there was a high level of dispersion of school size around the mean. Despite the fact that most systems have a large number of small primary schools, such schools in

Report 1 : 76-77

total enrol comparatively few students. Accordingly, when the distribution of school size is weighted by the distribution of student enrolments, a mean school size is obtained which indicates the average size of school in which a student is likely to be enrolled. Across Australia the simple mean enrolment for a primary school was 258 but the weighted mean was 503. Thus, the student perspective on school size differs from the system perspective obtained from the simple mean. The difference was most marked for Queensland. Even though the simple mean primary school size in 1979 was 231, a typical Queensland primary student was likely to be enrolled in a primary school unit with 546 students.

Report 1 : 71-75
Report 2 : 53-57

Secondary schools. Secondary school units (i.e. secondary schools and the secondary components of combined primary-secondary schools) on average are considerably larger than primary schools in the same system. In 1979, the mean size of government secondary school units ranged from 408 in Tasmania to 697 in New South Wales with an Australia-wide mean of 563. Even though secondary schools tend to be

Report 1 : 76-77

more homogeneous in size than primary schools there was still a difference between the system perspective (or simple mean) and the student perspective (or weighted mean) of school size. The weighted mean school size for secondary schools across Australia was 816 indicating the size of school in which an average secondary school student would be enrolled. In Queensland where the simple mean was 498 the weighted mean was 943 students.

School size and operating costs. As discussed in the next section, the formulae which allocate teachers and other personnel to government schools in Australia and New Zealand generally provide small schools with lower student-teacher ratios than large schools. This results in per student operating costs declining as school size increases. This relation is compounded by another general characteristic of the staffing formulae namely that in most systems

small schools receive a higher proportion of senior staff.

Report 1 : 156-166 The relationship between school size and per student operating costs is not linear. Although per student operating costs do decline as school size increases, they decline at a decreasing rate. As such, beyond a certain enrolment range, further increases in school size are associated with only a relatively small decline in per student operating costs. In general, this enrolment range is reached at a lower level for primary then for secondary schools. While differences exist between the systems, in most instances once a primary school rises above an enrolment of about 300 to 400 students, the decline in per student operating costs with continual increases in school size are relatively small. For secondary schools the comparable enrolment range is in the order of 700 to 800 students.

Report 1 : 153-155 The study only collected data on per student operating costs as reflected in teacher salary costs. A more extensive treatment of the issue necessitates the collection of data on capital and transportation costs.

Report 2 : 52-53
Report 3 : 163-166 Effects on students. School size may be a factor of influencing the experiences of students. Even through it is difficult to be definitive, much of the research evidence tends to favour small rather than large schools on such educational grounds as the richness of the experience of students and attitudes to school (e.g. Campbell, Cotterell, Robinson and Sadler, 1979) and there is no strong indication from educational research of any relationship between school size and student achievement. Actual policy should depend on a balance of educational benefits and financial costs in relation to the value placed on each, but there does seem little to support the establishment of large primary schools.

Report 2 : 187-190
Report 3 : 163-165 For secondary schools the educational benefits of small size need to be weighed against the need to sustain a viable range of subject choices, especially in the post-compulsory years. Most secondary schools seem to offer in Year 12 about three times the number of subjects which any given student is required to study. When the combined enrolment in Years 11 and 12 is less than 80 to 100 (which would typically occur in a school of 500 students) schools seem to offer a reduced subject range and even then the size of classes at Year 12 becomes rather small. This suggests that the benefits which may accrue in Years 7 to 10 in terms of the more intimate environment of a small school could only be gained at the expense of curriculum

diversity in Years 11 and 12. In a restricted curriculum range in the senior secondary school it might well be the less traditional subjects which are omitted. One alternative which might be tried more widely is the establishment of senior colleges. Another which is being tried in some localities is that of clusters of schools in which individual schools specialize in particular subject areas with students moving between them if the need arises. Both deserve further evaluation, especially in areas in which overall enrolments are declining.

The Allocation of Resources to Schools

The basic question in considering the allocation of resources to schools is one of how best to supply resources to schools so as to satisfy their educational needs within overall resource constraints. It is apparent that at the same time as there is a diversification of the educational needs of schools there are also many pressures constraining the resources made available to schools. The past decade has seen a shift to school-based curriculum development which has resulted in varied philosophies and programs between schools and consequently different types of need and different organizational structures.

Bases of Allocation

Report 1 : 110-111 Schools require a range of different types of personnel. By far the most common and most extensively used procedure for allocating staff to schools is the direct appointment of staff by the Education Department to a school or group of schools according to allocative formulae which relate the level and configuration of personnel to school enrolments. A smaller but nonetheless important number of direct staff appointments are made according to an Education Department's assessment of school needs. A third means by which staff may be appointed in some systems is where the school appoints staff with money made available by the Education Department. This practice has not been widespread but has applied in the employment of ancillary staff by School Councils in Victoria and South Australia. An *Report 2 : 19* extension of the principle has been used in the operation of the Schools Commission Recurrent Grants scheme in Tasmania. In that system some 70 per cent of those funds were allocated directly to schools according to an enrolment and a needs criterion. Within very broad guidelines schools could use the money as they judged appropriate and,

in 1979, more than 80 per cent of the funds were used to hire either additional teaching staff or teacher aides (see Perchard, 1979). A fourth means by which schools could acquire staff was by using funds coming either from its own school community or, more commonly, from government agencies other than the Education Department. Probably the best examples of the latter were the operation of the

Report 3 : 141-161

Schools Commission Disadvantaged Schools Program and Innovations Program and some multicultural education programs. In some of the case study schools there was evidence of a number of initiatives taken by schools to supplement their resources.

Report 1 : 136-149

Of the total number of teachers in government schools the great majority was allocated according to formulae or schedules that specified the number of teachers which schools of a given enrolment level and type should receive. The reason for extensive reliance on staffing formulae in allocating teachers can be traced to the early stages of the development of the education systems. The staffing schedules helped to provide equality of provision within schools in diverse geographic and social circumstances.

Formula Allocation of Teachers

Report 1 : 111-113

In each system a formula or schedule is used to determine the minimum number and basic configuration of teachers to which a school is entitled. In most systems the schedule relates these entitlements to the aggregate enrolment of the school. The exceptions to this in 1979 and 1980 were the primary and secondary schools of New South Wales and the secondary schools of Western Australia. The larger primary schools in New South Wales had slightly different schedules for the infants and upper primary sections. The secondary schools in New South Wales had teacher entitlements calculated separately for each year level. As one moved from Year 7 to Year 12 the allocation became more generous with an additional weighting being applied for students designated as having learning difficulties. In Western Australia the total school entitlement to teachers was formed separately for the lower secondary school (Years 8 to 10) and the upper secondary school (Years 11 and 12) with a more generous allocation to the upper school enrolment.

Report 1 : 113-117

Primary schools. Despite the differences between the eight systems in the minimum number of teachers to which primary schools

of a given enrolment were entitled, and differences in the way the formulae were specified, in practice each schedule was closely approximated by a linear equation relating the number of teachers (T) to the school enrolment (E).

$$T = a + bE$$

For 1980, the values of 'a' ranged from 0.04 to 1.3 with a median value of 0.77, while 'b' had a median value of 0.040 and a range from 0.032 to 0.043. The higher the values of 'a' and 'b' the higher the level of staffing for each school. The magnitude of 'a' provides an indication of the relative staffing of small schools. The value of 'b' approximates the number of additional teachers provided as enrolments increase. The difference between values of 'b' of 0.037 and 0.043 (the minimum and maximum in Australia) would be equivalent to three additional teachers in a school of 500 students. In each system, the staffing schedule indicated a positive relationship between school size and student-teacher ratios, although the extent of this weighting varied between the systems.

Report 1 : 117-120

Secondary schools. For secondary schools, as for primary schools, teaching staff entitlements in each system were able to be described as a linear function of enrolments. In the case of secondary schools the median value of 'a' was 7.43 and that of 'b' was 0.059. In every system a secondary school was entitled to considerably more teachers than a primary school of the same size. Most noticeably, in terms of student-teacher ratios the secondary school formulae provided a greater loading for small schools than did primary school formulae.

Report 2 : 69-74, 90-93

Report 1 : 121-135

Report 3 : 110-115, 131-138

Staff configurations. In most systems the staffing schedules indicated the number of teacher promotion classifications as well as the total number of teachers to which a school was entitled. In all systems there was a seniority weighting towards small schools presumably on the basis that administrative and leadership functions do not necessarily diminish with decreasing size. Yet, on the basis of the case study schools, it appeared that smaller schools lacked sufficient staff in senior positions and with time for management, academic leadership, and normal administrative duties. This applied particularly in terms of the management of subject departments in small secondary schools, and general administration in small primary schools. The question of the most appropriate configuration of

teachers in schools of various size and types is an important research area.

Another aspect of the configuration of a school staff is the mix of teaching responsibilities beyond that implied by the distribution of promotion positions. Some staffing schedules specified the enrolment point at which the school became entitled to a music teacher, a counsellor and so on. In general, as enrolments increase the proportion of the staff who may be considered specialist teachers declines. All systems allowed schools to request certain types of teacher within their overall staff allocation.

The Actual Allocation of Teachers

Report 1 : 136-149 In each of the eight systems it has been accepted that the staffing schedule is best viewed as a minimum entitlement to resources and provision has been made for allocating additional resources to particular schools. Such additional allocations have often been guided by assessments of educational disadvantage, but sometimes additional resources have been made available to support innovative programs. The procedures followed in allocating teachers above formulae varied considerably as did the extent of the allocation. However, the actual allocations of teaching staff to schools was related linearly to enrolment levels but the fit of the line to the data was not so close for secondary as for primary schools.

Report 1 : 140-149
Report 2 : 61-66

A comparison between the formulae entitlements and the actual level of resources reported by schools in 1979 suggested that for primary schools of average size in each of the systems of the order of 10 per cent of the teaching staff were allocated to the school on an above-formulae basis. In most systems the corresponding percentage for secondary schools was a little lower. In both types of school there was an inverse relation between school size and the percentage of the teachers allocated to it on an above-formulae basis. This suggests that some special priority was being given for the needs of relatively small schools. It is important to note that the proportion of teachers in a system allocated to schools on an above-formulae basis does not necessarily indicate the extent to which individual school needs are considered when allocating teachers. The extent to which a linear relation between teacher numbers and school enrolments fits the actual data needs also to be considered.

Support Staff

Report 1: 149-151
Report 2: 80-89

In the Australian government school systems in 1979 about 10 per cent of school-based personnel were employed as instructional, administrative and clerical support staff. The allocation policies regarding support staff were less easily characterized than those for teaching staff for several reasons. First, there were more varied sources of funds which could be used to employ support staff, for example through programs of the Commonwealth Schools Commission, and in some systems by support from other government departments. Secondly, features of the schools other than the total enrolment governed its entitlement to particular types of ancillary staff to a greater extent than applied to teaching staff. Thirdly, several systems (the Australian Capital Territory, South Australia, Tasmania and New Zealand) did not allocate pre-determined types of ancillary staff to schools, but instead allocated an aggregate ancillary staff entitlement, and allowed schools to determine the configuration of their staff complement.

Despite these difficulties two main features of support staff allocation policies emerged. First, while the ancillary staff entitlement increased with enrolments, this increase was not uniformly proportional to enrolments. Small schools, but not very small schools, were relatively better supplied than larger schools in most systems, but there were some important variations. Secondly, secondary schools generally appeared better provided with support staff than primary schools.

Some Emerging Alternatives

Report 1: 185-189

Two of the important themes emerging in debate about the way resources are allocated to schools concern 'school-determined priorities' and 'needs-based staffing'. One option to allow greater school determination of priorities is that of a 'basket of services' approach. Under that approach a school would be allocated an entitlement to 'teacher units' according to its enrolment and other features. It could then determine the profile of staff in various promotion positions which best met its needs and its program. Under such a system schools could have a greater involvement in the selection of staff (especially the senior staff) though it seems important that education departments should remain the employing

authorities. In a basket of services separate provisions could be made for teaching staff, for ancillary staff, and for materials and equipment. It might also be necessary to set boundaries within which a choice of structure could be exercised so as to preserve a sufficiently attractive career structure in the teaching profession. The argument in support of a basket of services approach to resource allocation is that it would seem to be a useful corollary to increased school autonomy in curriculum matters, and to less stringent zoning of

Report 2 : 99-107

students to particular schools. The survey suggested that there was considerable variation between schools in the type of additional staff they would seek and in the case study schools there was evidence to support greater school influence in the type of staff to be appointed. Alternative resource allocation policies such as these would require trial and evaluation before implementation.

Report 1 : 180-189
Report 3 : 220-224

In any consideration of staffing policies, the treatment of individual school needs is a major factor. One possible means of allowing for individual school factors to be incorporated in resource allocation decision making could be through a prospective review of school programs. A review panel could be selected to review a school's recent program and consider submissions on the future resource needs of the school. Such a process could assist schools to evaluate more effectively their programs as well as enable detailed consideration of individual school needs in the planning of future resource allocation policies.

SECTION 3

RESOURCE ALLOCATION IN GOVERNMENT SCHOOLS

In the previous section a number of aspects of the allocation of personnel resources to schools in the eight government school systems was discussed. The present section considers the ways in which the personnel appointed to schools were deployed.

Personnel in Schools

Any consideration of the personnel available in schools needs to take cognizance of more than the overall ratio of students to teachers. Even though the total number of teachers in a school is an important indicator of its personnel resources it is equally important to consider the profile of the complement of staff in schools. The personnel in schools include people fulfilling a range of responsibilities. Though school personnel could be classified broadly as teaching and support staff, that distinction needs to be qualified by a consideration of the tasks expected of each group of staff.

Teaching Staff

Report 2 : 58-61

Teachers can be distinguished from support staff according to three main criteria: the salary award under which they are employed, their professional training, and their intended role in the school. Not all personnel employed as teachers are engaged in direct class teaching: some would have a counselling, welfare, support or managerial role. As examples, neither a principal nor a teacher librarian might have direct class teaching responsibilities but both would usually be classed as teachers because they were directly involved in the educational program of the school, they were qualified as teachers and they were employed as teachers. In the survey of schools, teaching staff were classified as being classroom teachers, senior teachers (including principals) who had some management duties, and specialist teachers whose tasks were more varied than other teachers and might involve special assistance to individuals and groups of students, or the general enrichment of an educational program. The proportion of teachers in each of these categories varied between the eight school systems, between primary and secondary schools in the one system, and also

varied with school size.

Report 2 : 70-73

Primary schools. For primary schools in Australia there were four systems (the Australian Capital Territory, Victoria, South Australia and Tasmania) in which the mean ratio of teachers to students was between 49 per thousand and 51 per thousand, and three (New South Wales, Queensland and Western Australia) in which that ratio was between 43 per thousand and 44 per thousand. For New Zealand schools (excluding intermediate schools) the ratio was a little lower still. In general the ratios were more favourable in small schools than large. Generally schools in Victoria and the Australian Capital Territory had higher proportions of specialist teachers than did those of other systems and it appeared that the systems which provided more teaching resources in schools were those which made a greater proportion of that provision as specialist staff. This suggests that additional resources were not simply more of the same but included staff directed towards enriching and extending parts of the program. As such, average class sizes showed less variation between the systems than the teacher-student ratios would have otherwise suggested.

Report 2 : 73-74

Secondary schools. In all systems, staffing levels were considerably higher in secondary than in primary schools. The secondary school systems of Australia had mean ratios of teachers to students ranging from 72 per thousand (in Queensland and Western Australia) to 89 per thousand (in Victoria). Distinctive secondary school types such as the senior colleges of the Australian Capital Territory and Tasmania and the technical schools of Victoria had more generous staff provisions than high schools in the same systems. To a greater extent than for primary schools, small secondary schools had higher ratios of teachers to students than did large secondary schools. As for primary schools, school systems which had generous overall teacher to student ratios included among the teaching complement a higher number of specialist teachers in positions concerned with such matters as pupil welfare and careers advice.

Aggregate teacher to student ratios can disguise the resources available to students because in some systems a similar function to that performed by a specialist teacher might be the responsibility of a person who is part of the support staff, and because different systems supply different levels of support for the range of administrative and

management functions of the school. It is important to consider the provision of support staff in schools in addition to the provision of teaching staff. This is necessary because some school systems which appear well provided with teaching staff may be relatively poorly provided with support staff. For example, in Victoria, which had schools that were well provided in terms of total teacher numbers, there were fewer support staff than in the schools of most other systems. In addition, there were policy differences between systems in terms of whether a given role was performed by a specialist teacher or a member of the support staff, particularly in the area of student welfare. An important policy area about which relatively little is currently known is the most appropriate blend of teaching and support staff in schools of different types and sizes.

Report 2 : 87-89

Support Staff

Support staff includes a wide range of personnel. Some, such as teacher aides, have a direct role in assisting the work of teachers. Others perform clerical duties, or have responsibility for the welfare of students. In terms of their role in schools support staff could be categorized as operating support (e.g. teacher aides), administrative support (e.g. clerical assistants), social support (e.g. counselling) and curriculum support (e.g. audio-visual advisors).

Report 2 : 80-87
Report 3 : 144-146, 151-154

Most support staff in schools were either administrative support staff or operating support staff. There were very few in the categories designated as 'curriculum' or 'social'. In Australia, mean ratios of administrative support staff to students ranged from one per thousand (in Victoria) to three per thousand (in the Australian Capital Territory and Tasmania) for primary schools, and from three per thousand (in Queensland) to about six per thousand (in the Australian Capital Territory) for secondary schools. For operating support the corresponding mean ratios ranged from just over one per thousand (in Victoria) to six per thousand (in South Australia) in primary schools and from four per thousand (in Victorian technical schools) to nine per thousand (in Tasmania) for secondary schools. New Zealand primary schools had levels of administrative support and operating support similar to those of Victoria. Not only were the differences between systems in the provisions for support staff of these types larger than for teaching staff, but also the provision of support staff in schools was less closely tied to school enrolments than were teacher numbers.

Report 2 : 85-86

School Needs

In the discussion above the question of the appropriate balance of teaching and support staff was raised. It would be unlikely that one answer would exist to such a question given that schools would differ in terms of their priorities among goals, their enrolment profile, their size and location. In some systems there was evidence of small schools being granted additional support staff to assist in the administration of the schools but in other systems this policy was not followed. One of the case study schools was a small school (of about 150 students) in which the principal had a full teaching load but in which the provision of administrative support staff was scant. In that particular case when enrolments had declined not only did the position of principal become a teaching position but the entitlement to support staff had also been reduced. More generally it is important to consider schools' requirements in terms of such features as their size, environment, and intended program, and allocate to them a complement of teaching and support staff which enables them to function effectively. As mentioned previously one possible means of taking such factors into consideration is through a 'prospective review' of school programs and staffing levels to advise on the need for additional staff to meet the circumstances of particular schools.

Report 2 : 90-93

Report 3 : 110-111

Report 3 : 224

Report 2 : 99-107

Generally, the principals of schools in the survey expressed the view that there had been increased demands on teachers in recent years. The provision of an appropriate complement of support staff could be one important way of enabling teachers to meet these emerging demands.

Structures in Schools

The study was concerned with two broad types of school structure which were designated as 'policy-formulation structures' and 'policy-implementation structures'. Each was then further subdivided. The former group were classed as either 'extraprofessional' or 'professional' depending on whether or not partcipants other than teachers were involved. Included in this general category were structures which had formal authority and those whose influence could only be through persuasion. Policy-implementation structures were subdivided into 'teaching structures', which referred to the methods of grouping students and teachers, and 'curriculum structures' referring

to the broad framework around which the schools program was organized.

Policy-formulation Structures

Report 2 : 110-133
Report 3 : 204-246

Policy-formulation structures were often important vehicles through which statements concerning school goals were determined and through which the differing perspectives of various groups could be reconciled. In this role they served to establish a consensus with which all parties could comfortably work. The less effectively the consensus was established the greater were the difficulties in implementing policy based on those goals. In several case study schools which had implemented innovative programs, it was possible to see the ways different types of structure had been involved in building consensus, and how important that process was to the successful implementation of innovations. A second way in which policy-formulation structures related to goals concerned the translation of those goals into practical policies. At this level also it seemed necessary to secure the commitment of relevant participants and to ensure that the form of the structures adopted was congruent

Report 3 : 167-172

with policy goals. In one case where a school's goals strongly emphasized the social development of students, the implementation of those goals was restricted since the policy structures with the greatest power were based on subject departments. It is important to appreciate that decisions about the way goals are translated into policy would inevitably involve the setting of priorities about the allocation of resources: even if that were only acknowledged implicitly. A third and final way in which policy-formulation structures were relevant to a school's goals concerned the process for review of those goals. A coherent set of structures for policy formulation which involved all relevant participants at an appropriate level appeared to facilitate the formative and continuing review of goals. In this sense the process of review may focus only at particular times, but the gathering of evaluative evidence would be an ongoing

Report 3 : 213-214

process within the various structures. One of the primary schools included in the case studies involved its school-based curriculum development committees in the review and evaluation of teaching in different subject areas. A secondary school had undertaken several evaluations of different aspects of its program. Generally, however, this is an area of school activity which deserves further development.

Report 2 : 111-117, 123-127
Report 3 : 205-207

Extraprofessional structures. Only in New Zealand was there evidence of an extraprofessional policy-formulating structure at regional level: the district education board. More recently, regional education councils have been recommended in Victoria and South Australia. At the school level, statutory councils, boards or committees existed for both primary and secondary schools in the Australian Capital Territory, Victoria, South Australia and New Zealand. Mostly, these bodies exercised authority in conjunction with the principal on matters of expenditure, provided advice on curricular and extracurricular matters, but had little formal influence over school programs or the appointment of staff. Notable exceptions were:

1 in the Australian Capital Territory where the school board exercised authority in conjunction with the principal in curriculum matters;
2 in Victorian schools where the school council in conjunction with the principal made decisions about the appointment of some non-teaching staff;
3 in Victorian technical schools where school councils were involved in the appointment of principals and vice-principals; and
4 in New Zealand secondary schools where Boards of Governors appointed staff, but had restricted powers of dismissal.

In systems other than those mentioned above a few schools had established non-statutory school councils. More generally, schools in such systems acknowledged that some advice was received on curricular and extracurricular issues through parent associations or similar bodies. In systems where no statutory extraprofessional bodies had been established the level of involvement of parents' associations was rather less than would be expected of a council or board. Extending the devolution of authority to schools would appear to depend on the strengthening of school councils where they already exist, and the establishment of such bodies where they do not exist. One should not presume that this is an easy process for it takes time for a sense of partnership to develop. However, it is probably a necessary process if schools are to be more responsive to local circumstance.

Report 3 : 208-211, 225-228

From the evidence reported in the case studies it was possible to offer some more detailed perspectives on the role of extraprofessional bodies in school policy formulation. In most schools the concept of

community participation in decision making was accepted but in a few schools teachers were generally opposed to involving the community in 'professional issues'. Even where the concept of community participation was widely accepted by staff, schools had not found it easy to generate real participation. Effective participation may increase as members of the community become more accustomed to the idea of their being involved in school affairs, but this is likely to be a slow process. To facilitate involvement there are advantages which can accrue from parents actively contributing to the school program, particularly if the school can encourage such participation to be representative of a wide range of parents. In general the experiences of the school case studies should caution policy makers from expecting too much too soon from school councils without providing guidance and encouragement to those bodies. In encouraging increased community involvement in schools, it is important that a balance be kept between the roles adopted by professional staff and the community in developing school policy.

Report 2 : 117-123, 127-133
Report 3 : 208-224, 228-242

Professional structures. In examining professional policy-formulation structures the effects of the different traditions of primary and secondary education were evident. For primary schools the role of the principal appeared to be crucial in the co-ordination of the activities of the school, though in most systems the individual teacher had considerable autonomy within the classroom. In all but the very small primary schools, formal structures for policy formulation existed in the form of staff meetings and year level

Report 3 : 213

meetings. In a number of primary schools, notably in the Australian Capital Territory, rather wider structures were reported in the form of subject area groupings to examine the school program in various curriculum areas and in the form of school-wide curriculum committees. Such structures appeared to be necessary responses to the widening role of primary schools and seemed an effective means of reducing the isolation of each classroom unit.

Report 2 : 129-133

In secondary schools the policy-formulation role of the principal was generally less direct because of the greater emphasis on subject-based expertise. There was evidence however, that although the subject department had generally been a very important policy-formulating structure in secondary schools, its authority was weakening through the establishment of other structures. School-wide

curriculum committees were reported in a number of schools as meeting regularly, as were groups of teachers teaching at each year level. These two structures provided for co-ordination of activities across subject areas in various ways and thereby provided important vehicles for the internal review of school programs. As with primary schools, there were differences between systems, and in some cases within systems, in the patterns of policy-formulation structures which had been established.

The establishment of policy-formulation structures which are able to articulate appropriate goals for schools and which are able to function in congruence with those goals would seem to be an important part of ensuring that schools are effective. Those structures need resources in terms of time and services in order to function properly. They should not be seen as peripheral to other school activities but as central to them.

Policy-implementation Structures

This general category was sub-divided into teaching structures and curriculum structures. Teaching structures embraced the ways in which students were grouped in classes and the basis on which teachers were assigned to those classes. Curriculum structures constituted the broad frameworks around which schools' teaching programs were organized.

Report 2 : 133-153

Teaching structures. Three dimensions were identified as underlying the organization of classes in schools: whether the classes contained students from a single year level (horizontal grouping) or from two or more year levels (vertical grouping), whether classes were homogeneous or heterogeneous with respect to ability, and whether the teaching groups were fixed for the school week or relatively fluid. In primary schools the majority of classes contained students of one year level. Where vertical grouping was used it was most often in response to resource constraints such as those arising from the relationship between teacher numbers and the distribution of student enrolments between year levels. However, in some States there was a number of schools which had formed vertical grouping because they regarded that type of structure as enabling them to utilize more effectively their resources in pursuit of their goals. Relatively few primary schools reported that ability was a factor in allocating students to classes though in New South Wales about one school in five

indicated that this was the case. There was some evidence of fluidity in teaching groups in primary schools so that students in some schools moved to different groupings for some lessons. In terms of the allocation of teachers to classes, most schools reported that one teacher was responsible for each class for the majority of its lessons, which is the traditional primary school pattern, but in larger primary schools specialist teachers also formed an important part of the program. Overall, while there appeared to have been most changes in the traditional pattern of primary school organization, in some instances the one teacher remained the central focus for each class.

Report 3 : 83-84, 197-203

Report 3 : 55-92

The case studies of primary schools probed in more detail the various ways in which schools grouped students according to a range of criteria, the different forms of co-operative and team teaching which had been tried, and the types of fluid groupings which were used for particular purposes in some primary schools. One particular issue on which further research needs to be undertaken is the role of vertical or composite age groupings. Teachers in the case study primary schools reported mixed views of this form of class organization.

Report 2 : 145-147

In secondary schools the use of vertical age groupings was less common than in primary schools. Where it was reported it seemed to have been implemented in order to increase the school's capacity to devise individual programs for students based on term or semester length units. Vertical grouping was more common in the high schools of the Australian Capital Territory and Victoria, though it was also a feature of the senior colleges in the Australian Capital Territory and Tasmania. Grouping students according to perceived ability was more frequently reported in secondary than in primary schools and was most common in Years 9 and 10 in New South Wales and Western Australia. Secondary schools reported that the most common form of teacher allocation to classes was where different teachers taught different subjects, but in the first year of secondary school, a few schools indicated some variations from this. In some schools classes at that level were organized so that one teacher taught a relatively fixed group of students for most lessons. That practice suggested that a few secondary schools were adopting one of the organizational features traditionally associated with primary schools.

Report 3 : 90-91

Report 3 : 55-63, 166-175

Sub-schools. Sub-schools represent an attempt to provide parts of a school with a relatively high degree of autonomy. Within this

broad definition the case study schools reported a variety of types of sub-school organization established for various purposes. Such purposes included those which were to provide better for student welfare in smaller units, to allow a variety of curriculum structures or teaching styles, to devolve administrative responsibility, or to encourage co-operative teaching arrangements. To achieve these purposes, schools had established a variety of sub-school structures including vertical age groupings, horizontal age groupings, or some combination of both. The success or otherwise of these forms of structure were partly dependent on system-wide policies and expectations. For example, in a case study secondary school located in a system in which subject departments traditionally had considerable authority, one sub-school structure which had developed encountered resistance from some subject departments. Experiences of the case study schools suggest the need to co-ordinate sub-schools that are established and draw attention to the possibility that the creation of sub-schools to facilitate the pursuit of one goal (e.g. better inter-personal relations) may limit the achievement of other goals (e.g. wide student choice of subjects).

Report 2 : 153-156

Curriculum structures. Curriculum structures constitute the broad framework within which particular resource policies are embedded and represent an important part of the way a school's goals are implemented. Primary schools reported that at most year levels the curriculum structure was a common core with additional activities developed by each class teacher. Most of those schools reporting any different structure indicated that the best description of their curriculum structure was a common program of studies taken by all students. Only a few primary schools suggested that class teachers acted independently, that students chose between electives or that individual programs were designed for individual students, though in one case study school such programs were reported.

Report 3 : 101-105, 197-203

Of more general significance in the primary schools which were studied was the role of specialist teaching in the program. Included among the case study schools were arrangements where specialist teachers taught a class instead of the regular teacher, where specialist teachers were involved with class teachers in team teaching so that two teachers were present for some lessons, and where teachers with particular skills provided ideas and advice to other teachers in addition to giving instruction to a class.

Report 2 : 153-156

For secondary schools the reported curriculum structures varied between year levels. In the first year of secondary education the most common pattern was one type of course based on a series of separate subjects. The range was from 54 per cent of schools reporting this structure in the Australian Capital Territory to 80 per cent of schools in Victoria. The most common reported pattern in Years 9 and 10 was that of a core and a series of electives. By Year 10 more than 80 per cent of schools from most systems indicated that a 'core plus elective' curriculum structure was followed. For Years 11 and 12 most programs were based entirely on electives.

Report 2 : 185-190
Report 3 : 181-193

The proportion of student time devoted to compulsory subjects declined as students progressed through the year levels. In Year 7 the median proportion of time given to compulsory subjects was 92 per cent, by Year 10 it was 57 per cent and by Year 12 it was about 15 per cent. The widening of student choice of subjects was at least partly dependent on the resources available.

Report 2 : 153-156

A few secondary schools reported curriculum structures in Years 8, 9, and 10 based on term or semester length units, rather than year length subjects. In a number of schools this occurred in conjunction with vertically structured teaching groups. In principle, these structures were similar to those of the secondary colleges in the Australian Capital Territory. From case studies of one secondary school and one secondary college which had adopted this type of curriculum structure, it was possible to draw attention to advantages in terms of flexibility in course design, in wider student choice and in the design of curricula. However, such structures make more obvious the need for counselling of students about subject choice, which in turn implies the allocation of staff time to this role, as well as some provision for the development of staff skills in this important area.

Report 3 : 185-190

A common goal of curriculum structures based on units is to increase student participation in curriculum choice. One case study secondary school extended student participation in curriculum choice by means of a system of unscheduled time during which students were free to allocate their time according to their learning priorities. At that school up to 20 per cent of a student's week could involve unscheduled time and although teachers were involved in such sessions their role was less directive than that normally evident in regular class teaching.

Report 3 : 181-184

Resource Allocation

Some General Issues

Report 2 : 161-191
Report 3 : 93-140

The allocation of the resources available within a school is not simply a matter of placing a teacher in charge of each class. Among other things it involves deploying staff in curriculum areas and to year levels where their skills and interests will be of greatest benefit to students. Allocating resources extends beyond even the sensitive deployment of teachers to classes. It involves a consideration of the functions which the personnel of a school need to perform so that the institution can function effectively. In broad terms these functions could be grouped in three categories. The first could be designated 'class teaching' which would be represented by the time during which teachers were in class with groups of students. The second could be referred to as 'class-related management' which would include a variety of preparation and correction activities conducted so as to facilitate class teaching. The third and final category could be termed 'school management' and would include various executive and administrative tasks as well as the provision of guidance and counselling to students, and contributions to school-wide curriculum development. That time which has sometimes been described as 'non-contact' time could be better characterized as time allocated to class-related management and to school management.

Report 2 : 161-162
Report 3 : 110-115, 131-138

The term school management deserves some elaboration for it could easily be given too narrow an interpretation. It was not intended to be restricted to the administration of the school. It was intended to embrace those functions of schooling which extended beyond the provision of instruction in classes. It would include such matters as the responsibility for student welfare, the provision of advice regarding careers, the maintenance of relations with parents, the management of a library or resource centre in which students learned independently, the support of enrichment activities at the school, and the provision of special assistance to students with particular learning problems. The list is not exhaustive. It has been included to illustrate some aspects of the range of functions of schools outside classroom teaching to which resources need to be allocated. In addition to these functions there is a range of administrative tasks which form an important part of any effective organizational framework and to which resources need to be allocated. Such administrative tasks often

involve staff other than those who are most senior. These administrative tasks form part, but not all, of the category of time designated as school management.

The Allocation of Resources to Functions

In principle, schools could choose to allocate different proportions of available staff time to different aspects of their program. In practice, that choice would be made in the context of the total level of available resources, and the requirements regarding maximum class size and teaching loads set by either education departments or teachers' organizations. Within those boundaries for example, more resources could be provided for assisting individuals or small groups of students at the expense of larger classes in other areas, or all resources could be assigned to class teaching so that classes were the smallest possible.

Report 2 : 175-177

Primary schools. In most systems of primary schools about 80 per cent of available teacher hours were allocated to direct class teaching. Most of the remaining time was used in specialist or support roles. Many of the specialist roles in primary schools appeared to be involve remedial teaching and ethnic education. Even though there is no reason to suppose that one pattern of resource allocation is superior to another, the data suggested that there were some policy differences between the systems. It seemed that the major differences between school systems were associated with differences in the proportion of specialist teachers on staff. In addition, in some schools resources were diverted from normal class teaching to the provision of additional assistance to some students in small groups. There was also variation in the methods by which schools had managed to provide non-contact time for class teachers in primary schools. Most commonly, these methods involved using the time when specialist teachers taught the class, but other methods (e.g. involving senior staff) were also reported.

Report 3 : 100-105

Report 2 : 178-181

Report 3 : 115-120

Secondary schools. In secondary schools the percentage of total teacher time allocated to class teaching (about 60 per cent) was lower than in primary schools. As for primary schools there were differences between systems related to the proportion of specialist teachers on staff, the allocation of teacher time to teaching students in small groups, and the provision of non-class teaching time.

The Size of Classes

Report 2 : 163-172 There are a number of ways of defining the average class size for a year level or school, depending on whether roll classes or actual teaching groups are used, and whether a simple average or a time-weighted average is quoted. The differences between these concepts may be significant and in certain curriculum structures different values of the average class size could be obtained from a student's perspective than might be obtained from a school's perspective. The present study cited average roll classes for primary schools and time-weighted average class size for secondary schools. In both cases the information was calculated from official records rather than survey data but was based on probability samples of schools. On this basis the results quoted should more closely reflect the size of classes in schools attended by a sample of students than would results based on a simple sample of schools. If a simple sample, or a population of schools was considered the distribution of class size would be skewed so that an 'average' reported as the mean would be smaller than the mean class size as experienced by students.

Report 2 : 172-174
Report 3 : 105-110 Primary schools. Generally the average class size appeared a little larger than those often cited. As indicated above the explanation for this probably lies in the nature of the samples. The mean values of the class size for each system ranged from 25.2 (in South Australia) to 30.4 (in Western Australia). New Zealand's full and contributing primary schools fell within this range but the intermediate schools of that system had larger classes (a mean of 31.6). There were only small differences in class size across year levels, but in some systems it was evident that the size of classes in Years K-2 tended to be slightly smaller than those in the upper primary school.

Report 2 : 181-185
Report 3 : 121-131 Lower secondary school classes. The index of class size used for the secondary school was the time-weighted average class size. This index incorporates the size of classes in elective studies as well as core subjects, each in proportion to the time allocated. For high schools the time-weighted average class size at Year 9 ranged from 21.7 (in Tasmania) to 25.6 (in New South Wales). Within most school systems class sizes were similar across the compulsory school years.

Report 2 : 183-185 Upper secondary school classes. The sizes of classes in Years 11 and 12 were rather smaller than those in the lower secondary years. Leaving aside the special case of the Victorian technical schools, the range in means at Year 11 was from 17.6 (in South Australia) to 21.8 (in Queensland). At Year 12 the range in means was from 13.3 (in South Australia) to 18.7 (in Queensland). In effect, this meant that each student in Year 12 received between 19 per cent (in Queensland) and 45 per cent (in South Australia) more teacher time in class than the average student in lower year levels of the school.

In schools with a combined Year 11 and 12 enrolment less than about 80 to 100, the average class size in senior classes was noticably smaller than in larger schools. It seems that in those schools smaller classes were necessary to maintain a viable, though still relatively small, curriculum range.

SECTION 4

RESOURCE POLICIES AND STUDENT LEARNING

The present study has examined the policies and practices of education systems and schools regarding the allocation of the resources. This summary has presented a few of the perspectives reported in greater detail in the three main reports. In concluding the summary it is worth briefly reviewing some of the trends emerging in research concerning resource levels and student learning. The review considers studies based on schools and studies based on classes, and considers studies of both a correlational and an experimental design.

Studies of School Effects

Report 1 : 96-99
Report 2 : 6-16

Over the past 20 years there has emerged a body of research literature sometimes categorized as the study of school effects on student learning. Much of this literature has involved analyses of how much of the variation in student achievement could be attributed to variations in school conditions, teacher characteristics, or student characteristics. Research which can be considered part of this field has been reported, with some differences in methodology, in several countries. In the United States the Report on Equality of Educational Opportunity (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield and York, 1966) was a prominent early publication. In Britain research associated with an enquiry into primary schools (Peaker, 1967) was influential in policy development. Studies conducted under the auspices of the International Association for the Evaluation of Educational Achievement - the IEA - have provided valuable cross-national perspectives (Postlethwaite, 1975). Especially in the United States, reviews (e.g. Averch, Carroll, Donaldson, Kiesling and Pincus, 1972) have been interpreted as suggesting that differences between schools have at best only a modest relationship to differences in student achievement. However, it has also been argued that such interpretations could have been influenced by the limitations of the methodology employed (Husen, 1982). A review of research on school effects from several countries has suggested that the methodologies adopted in many studies could have underestimated the

magnitude of school effects on student learning (Madaus, Airasian and Kellaghan, 1980). The major methodological issues concern the conceptual frameworks of school organization implicit in the studies, the measurement of the effects of schools on students, research design and analytic procedures, and the ways in which inferences can be drawn from reported results.

Conceptual Framework

Much recent discussion of the conceptual basis for studies of school effects has concerned the use of the school as the only organizational unit for study. Barr and Dreeben (1978) have commented that by using aggregate measures of school characteristics, many studies have implicitly assumed that mean school characteristics applied equally to all students and all classrooms. They argued that insufficient attention had been given to the ways in which resources were allocted differentially to students. Together with Bidwell and Kasarda (1980), they drew attention to a set of studies which measured school attributes at a level of aggregation close to where the work of schooling occurred in the classroom or the high school curricular track. In contrast to studies conducted at a higher level of aggregation, these studies reported consistent positive results for the effect of school attributes on student learning. That conclusion could be seen as consistent with the observation by Comber and Keeves (1973:295) that large residual fractions of unexplained variation in the IEA study of science achievement could be due to either differences in teaching quality between classrooms or unmeasured personal characteristics of students.

One secondary analysis of IEA mathematics data showed that a sizeable component of the variation within schools could be attributed to differences between classrooms (Rakow, Airasian, and Madaus, 1978). As a result of an analysis of some simulated models, Bidwell and Kasarda (1980) suggested that the type of aggregated measures of learning conditions used in many studies of school effects would tend to underestimate the contribution of school factors to student learning and overestimate family background. They argued that problems in levels of aggregation have arisen in the past because the conceptual distinction between school and schooling was not made clear. As a consequence they urge that studies of school effects need to include an examination of the differences in organizational structures in

schools, and need to be based on models of schooling which delineate appropriate outcomes at each organizational level.

Of further relevance to the conceptual framework employed in many studies of school effectiveness is the single criterion which has most commonly been used: achievement scores. Viewing school effectiveness as a unidimensional construct neglects a number of important issues related to the social side of schooling. More attention is required in the development of a multidimenstional view of school effectiveness, which goes beyong the inclusion of attitudinal data as possible predictors of achievement. The problem is further compounded when it is realized that schools could, and do, allocate different proportions of their total resources to different aspects of schooling. Neither all resources, nor even the same proportion of the total resources in different schools would be directed to any single objective (Levin, 1970).

Measurement of School Effects

A second set of issues in studies of school effects concerns the procedures used to measure student achievement and in particular whether general ability or achievement tests, subject specific tests, or syllabus specific tests are used. The issue arises because of the problem of making valid between school assessments of student achievement when so much variation exists in the content of school programs. One response to this problem has been to measure achievement using standardized tests of general ability for example, verbal ability. However, other approaches have been adopted.

In the IEA studies subject specific tests were constructed and a statistical allowance made for the effect of differences in syllabus content by means of a rating of the opportunity to learn the material tested (Comber and Keeves, 1973:158-162). Those studies reported differences in the school effects between countries and between subject areas, and generally found larger school effects than were reported by Coleman et al. The authors of the IEA study of science education noted that 'learning conditions within the school accounts for enough variation in achievement to support the argument, no longer taken as self evident, that schools do have an impact on the learning of science' (Comber and Keeves, 1973:299). However, that conclusion needs to be qualified in that the only resource measure among the 'learning conditions' found to be related to achievement was

the number of ancillary staff. Analyses of Australian data from the IEA science study found similar results (Rosier, 1974): both schools and teachers made a difference in student learning of science and the provision of ancillary staff was related to higher science achievement even though more favourable student-teacher ratios were not. A subsequent study of mathematics achievement in Australia confirmed that differences in school policies were associated with differences in the achievement and attitudes of students (Rosier, 1980).

Other studies of school effects conducted in Ireland (Madaus, Kellaghan, Rakow and King, 1979), and Britain (Brimer, Madaus, Chapman, Kellaghan and Wood, 1978), made use of public examination results and thereby were able to use tests specific to the syllabus content studied by all the students in the studies. Those studies reported substantial differences between schools, and classes within schools in achievement after statistically controlling for student background factors. The authors concluded that school resources could contribute to student achievement. However, the school variables that were the most important predictors of achievement concerned the climate or activities of a school rather than its static characteristics. As evidence of the effects of different testing instruments, in the study conducted in Ireland the results obtained using examination results were compared with those obtained using norm-referenced standardized tests. The former were found to be more sensitive indicators of school effects than the latter. This conclusion needs to be borne in mind when interpreting the results of other studies of school effects.

Design and Analysis

Some technical apsects of design and analysis also form part of the debate about school effectiveness studies. Prominent in this area have been issues associated with the uses of cross-sectional or longitudinal designs, the applicability of specific techniques of analysis, and the choice of an appropriate unit of analysis. These issues have important ramifications for the interpretation of studies of school effects. For example, even though much of the data in studies of school effects have been cross-sectional (ie. collected at one point in time), it has been suggested that longitudinal data (ie. from the same students over time) can produce different results, showing generally stronger school effects (Centra and Potter, 1980). However, at least one important

longitudinal study in Britain reported that parent attitudes were far stronger predictors of achievement than either the material circumstances of the home or school factors (Peaker, 1971). Whatever the impact of using longitudinal designs on the observed size of school effects, the argument for such designs rests on their strong conceptual basis.

Specific techniques of analysis also constitute a focus of the debate about the design and analysis of school effects research. Because student background variables have often been confounded with school variables (for example low socio-economic areas often have poor provision of school resources), the issue of controlling for social status in analyses has loomed large. Several different techniques have been used to statistically control for these effects. There appear to be important conceptual differences between the estimation of variance components (Coleman et al., 1966), the apportioning of proportions of variance (Mayeske, Wisler, Beaton, Weinfield, Cohen, Okada, Proshek, and Tabler, 1972), and the decomposition of relationships (Comber and Keeves, 1973). The technique adopted depends on assumptions about the way various factors are thought to influence achievement: for example, whether home background is seen as operating prior to school factors or in collusion with school factors. A further important problem concerns the potentially confounding influences of unmeasured, and hard to measure, variables. Despite the findings of Peaker (1971) few studies have included measures of parental attitudes in the home background variables, and correlational studies of class size have not allowed for the possibility that beginning teachers or teachers judged to have 'weak class control' might be allocated to smaller classes and 'better' teachers might be assigned to larger classes.

A third issue concerning the design and analysis of studies of school effects concerns the unit of analysis. As suggested previously in this section, studies of school effects inevitably involve data from several levels of aggregation: student, classroom, and school. Accordingly there exist competing perspectives as to whether students or groups should be used as the basis of analysis. Burstien (1980) has shown that the analysis of educational effects at different levels can give different results. He argues that there is unlikely to be a single correct answer to questions about the appropriate level of analysis in these studies, and therefore the focus should be on defining a

multi-level perspective in which is embedded a formulation of research questions at each level. In such a perspective decisions about levels of analysis, and mixed level analysis would be derived from an appropriate model of school organization.

Problems of Inference

Any discussion of school effects would be incomplete without some consideration of the extent to which inferences about the effect of change can be derived from the results of studies conducted in naturalistic settings. A major factor to be considered is that there is usually little variation in school factors by comparison with home background. The results of studies of school effects should be interpreted in the context of the range of limited natural variation in school conditions which normally existed in the samples studied. Sometimes findings concerning the differential effects of small variations in school conditions have been misinterpreted as referring to the absolute effect of schooling. To examine the latter issue, one needs to consider the effect of students having no experience of school at all. One attempt at an examination of the absolute effects of schooling was reported by Heyns (1978) who compared the cognitive growth of students over long summer vacations with equivalent time intervals during the school year. It was found that schooling made a substantial contribution to cognitive growth.

The amount of variation in home background is a second factor which needs to be considered when interpreting the results of school effects studies. An insight into this issue can be gleaned from international studies. Postlethwaite (1975) noted that in the between-school analysis of science achievement in Scotland, home background accounted for 80 per cent of the variance but in Sweden home background accounted for only 8 per cent of the variance in achievement. Conversely a greater proportion of the variance in achievement was accounted for by learning conditions in Sweden than Scotland. Postlethwaite interpreted these results as reflecting a greater degree of social stratification in Scotland than Sweden. In Australia 35 per cent of the between-school variance in achievement was accounted for by the home background of students, placing it between the extremes of Scotland and Sweden. The implication of these results would appear to be that conclusions from studies of school effects are usually limited to the range of variation in school

conditions which were studied and by the social context in which they were studied. Furthermore, changes, such as the improvement in student-teacher ratios which took place over the seventies, may result in a number of consequent changes in the way schools, and education systems, operate apart from any direct effect of improvements in student-teacher ratios.

Methodological issues such as those discussed above are not esoteric technical matters. Each has important ramifications for the interpretation of individual research studies, and for inferences drawn from the research literature as a whole. Considerations of such issues should caution against the acceptance at face value of the suggestion that differences between schools have only a slight relationship to student achievement. In many studies the methodology adopted could have resulted in an underestimation of the magnitude of school effects. However, the size of that underestimate, if any, is uncertain and whether it applies to the resources which schools possess as well as the instructional organization in schools is unclear.

Experimental Studies of Class Size

Report 1 : 98-99
Report 2 : 12-15
Report 3 : 93-99

The size of a class is one measure of the school resources provided to the unit at which schooling occurs. Much of the research concerned with this issue has been considered inconclusive (La Fleur, Sumner, and Witton, 1975; Porwell, 1978) but has generated considerable debate and interesting theorizing (e.g. Ryan and Greenfield, 1975; 1976). For example, the review by La Fleur et al. suggested the research findings concerned with the effect of class size on academic achievement were equivocal, but that for teaching processes and non-academic achievement, small classes were preferable to large. Some of the research evidence would have been gathered by correlational studies so that its interpretation would be dependent on a knowledge of how various methodological issues were treated. Other studies have been experimental or quasi-experimental. Two meta-analyses, or quantitative syntheses of research results, have sought to integrate the findings of experimental research in this area. One (Glass and Smith, 1978), considered the relation between class size and achievement and the other examined the relationship of class size to classroom processes, teacher satisfaction and affective outcomes (Smith and Glass, 1979).

Concerning the meta-analysis of class and achievement the authors concluded that there was a relation between class size and achievement but that the strength of that relationship was more strongly revealed by well controlled than by poorly controlled studies. The general finding was that as class size diminished, student achievement increased but that the size of the increase was greater for smaller classes. It has generally been reported that the gains are substantially greater for a given reduction in class size below 20 than for a class above 20 (Glass and Smith, 1978:44). In a more recent publication the results reported by studies of a longer period of participation in classes of different sizes were separated from those reported by studies of short duration (Glass, Cahen, Smith and Filby, 1982:48-50). Studies of longer duration reported greater achievement gains for a given reduction in class size, over the range of class size from 30 to 20 students, than did studies of short duration. Studies of long duration suggested a more steady pattern of achievement gain than did studies of short duration, but it remained true that the bigger gains were made in already small classes.

The second of the two meta-analytic studies (Smith and Glass, 1979) was concerned with the effects of class size upon affective outcomes for students, on teacher satisfaction, and on teaching environments and methods. All three domains were positively influenced by reduced class size but the effect for teacher satisfaction was greatest. In these three domains the effects of reducing class size were more uniform across the spread of class sizes than was the case with achievement.

Studies by Filby, Cahen, McCutcheon and Kyle (1980) based on a small number of schools posited some explanations for the results outlined above. First, they suggested that the smaller classes made classroom management easier and more effective. Secondly, they noted that in relatively small classes teachers spent more time with individual students and knew more about each student's progress. Taken together these results suggest that the linking variable could well be an increase in academic learning time, defined by Berliner (1979) as the time for which students were directly engaged in learning material of an appropriate level of difficulty. Some Australian research (Campbell, 1981) supported this explanation by the suggestion that in smaller classes students spent more of their time in

work-related tasks. Thirdly, Filby et al. (1980) suggested that in smaller classes there were not major changes in curricula or teaching methods but that most teachers added more enrichment activities to the curriculum, which presumably would positively affect student motivation.

Though these results have sometimes been taken as providing unequivocal support for providing additional teaching resources in schools the policy implications would seem to be a little more complex than first appears. First, it has been noted (Glass, Cahen, Smith and Filby, 1979) that reducing class size will not guarantee improved achievement but rather create the potential for increased learning by increasing academic learning time. Secondly, in the range of class size from 30 to 20, which contains most primary school classes, the achievement gains for reduced class size were modest even though the gains in affective outcomes were somewhat greater. The implications for policy therefore depend partly on the values attached to each type of outcome. Thirdly, since achievement appeared to increase more rapidly in classes of less than 20 (Glass, Cahen, Smith and Filby, 1979) the policy implications may concern alternative use of resources in schools as much as additional resources. Some alternatives suggested by Glass et al. included more use of paraprofessional staff, volunteer parents, alternative patterns of scheduling and grouping, and directing resources so as to create small groups where the need appears greatest. If there were to be additional resources for schools they might prove more effective in creating small groups for special purposes than in creating a smaller, more uniform reduction of class sizes. If on the hand, there were not additional resources schools should be freed from those constraints which impede the use of resources in alternative ways.

Some schools at present provide for small groups to be formed for particular activities and particular groups of students. This is an area in which a great deal of policy-oriented research could be conducted in schools which are using interesting procedures. Research which would explore the impact of various intervention strategies could prove to be of great value.

In Conclusion

Each of the three reports of this study has examined patterns of resource allocation through various organizational structures at different levels. The first examined patterns of resource allocation and organizational structures at the level of education systems. The second reported on patterns of school structures and resource allocation policies at school level by means of survey data gathered from 657 schools. Finally, the third provided a more detailed analysis of the structures and resource allocation patterns in 16 specially selected schools with an examination of reasons why those schools adopted the policies observed. Taken together, the three reports provide an account of resource allocation throughout the government schools of Australia and New Zealand which will hopefully inform discussion about priorities and policy.

In all three reports cognizance has been taken of issues related to resource allocation which extend beyond the question of an optimum class size. Patterns of resource allocation in future years seem likely to be influenced by several continuing debates which are assuming greater prominence than previously. The first of these involves the balancing of a concern with equity in the staffing of schools with the encouragement of diversity in school programs. Structures through which diversity can be fostered while preserving equity in provision will have important ramifications for the staffing of schools. The second debate involves the attempts to resolve the potential incompatability between a tradition of centralized political responsibility and the emerging devolution of authority to schools. Particular responses to this problem not only depend on the stance taken on the basis of underlying philosophies regarding freedom and authority in society, but have important ramifications for staffing policies. This will be especially evident in the types of co-ordination mechanisms which are established. Intertwined with these issues runs a debate about the balance of priorities among the multifaceted purposes of schooling. Over the past 20 years schools seem to have filled a much expanded role, which has matched widening community expectations. Support for that widened role has implications not only for the level of resources in schools, but also for the types of resources available and the means by which those resources are allocated to particular schools.

The themes mentioned above are among many which seem likely to have a broad impact on education systems. Equally important are a number of related factors which seem likely to be important in influencing patterns of resource allocation in schools. In terms of equity and diversity, two issues at school level concern the relative allocation of resources between year levels and the pattern of resource allocation within year levels. In the former, the balance is between providing a sufficiently diverse program in senior secondary school without borrowing resources too extensively from the junior secondary school years. The latter concerns the problem of providing wide curriculum choice without a resultant increase in the size of classes in the area of study sometimes designated as core. A similiar issue arises in the provision of resources in response to individual needs and the differential allocation of resources to different groups of students. Responses to this issue depend in part on research evidence concerning the effectiveness of different sized teaching groups and the consensus of values which can be established.

In terms of freedom and authority two important aspects of school governance seem likely to affect resource allocation in the future. First, even in systems where school councils, or the equivalent, have formal authority, the fragile process of involving parents and community has only recently begun. One might expect to see more local involvement in the setting of school priorities as that process extends. Secondly, there appear to be changing patterns of control within schools so that new structures are emerging conjointly with new types of program. It is important that the co-ordination structures are congruent with the school program and that they are seen as a central part of the implementation of those programs. New structures, both those involving parents and community and those involving school staff, seem likely to emerge as important influences on the priorities established in resource allocation. An extension of the role of those structures would encompass evaluation procedures which inform decisions within schools about where resources ought to be allocated in order to maintain or achieve an effective and balanced program.

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